

## STORMS AND WEATHER WARNINGS.

## WASHINGTON FORECAST DISTRICT.

There were few storms during the month of sufficient intensity to justify storm warnings, although small-craft warnings were issued for portions of the Atlantic or the east Gulf coast on the 17th, 18th, 27th, 28th, 29th, and 30th.

Northeast storm warnings were displayed at 10 p. m. of the 4th from Sandy Hook, N. J., to Portland, Me., in connection with a disturbance of moderate intensity moving northeastward over the Middle Atlantic States and a stationary HIGH over northern New England and the Canadian Maritime Provinces. The following morning the display of warnings was extended to Eastport, Me. Verifying velocities were reached at New Haven, Nantucket, and Eastport.

No further storm warnings were required until the evening of the 18th, when southeast warnings were ordered displayed from Delaware Breakwater to Eastport, Me. At this time there was a strong and almost stationary HIGH off the north Atlantic coast and an area of abnormally low pressure from the Mississippi River eastward to the middle Atlantic and south Atlantic coasts. Verifying velocities were reported from Atlantic City, New Haven, and Boston.

A disturbance that remained almost stationary for several days in the Gulf of Mexico a short distance east of the mouth of the Mississippi River was attended by strong easterly winds at Mobile and Pensacola on the 29th and for which northeast storm warnings were issued at 9:30 p. m. of the 28th. This disturbance finally moved inland over the east Gulf States on June 1.

Frost warnings were issued for the cranberry bogs of New Jersey on several dates, for northeastern New York on the 8th and for northern New England on the 26th.—*Charles L. Mitchell.*

## CHICAGO FORECAST DISTRICT.

The month of May in the Chicago Forecast District was marked by slow and erratic storm movement, frequent precipitation, and temperatures generally above the seasonal average. No storms of importance crossed the Lake region except the one of the 6th–7th, which caused verifying wind velocities only over Lake Huron and most of the Lower Lake region, Buffalo, N. Y., reporting a maximum of 60 miles an hour from the west on the 7th. No storm warnings were ordered in connection with this disturbance, except at Alpena, Mich., local action being taken by the Official in Charge at that station on the morning of the 7th.

Damaging frosts did not occur at any time during the month east of the 100th meridian, but warnings for frost and freezing temperature were issued for Montana and Wyoming on the 8th, 9th, 10th, 11th, 12th, 13th, 15th, 21st, 22d, 26th, 27th, and 30th, and for the western portions of South Dakota and Nebraska on the 11th and 15th.

Special daily fire-weather forecasts were sent to the Forest Supervisor at Cass Lake, Minn., from the beginning of the month until the 9th, with which message the service was discontinued.

Special warnings were sent to the Wisconsin cranberry marshes on the 13th, 27th, and 31st, but the bogs were flooded in anticipation of these frosts and no damage resulted.

Beginning May 11 and continuing during the month special a. m. forecasts for the benefit of fruit growers in their spraying operations were telegraphed daily to Mr. L. K. Jones, Sturgeon Bay, Wis. These forecasts have usually covered a period of several days. This service is in connection with the research work on fruit diseases in the Door County district of Wisconsin which is being carried on by the College of Agriculture in the State University.

A special forecast service covering a three-day period for Lower Michigan was begun during the latter part of the month, the forecasts being telegraphed Friday mornings to the Official in Charge, Lansing, Mich., for publication in the *Weekly News Letter* of the Michigan State Farm Bureau, through which the special forecasts are distributed to a large number of subscribers throughout the State.

The special weekly forecast service covering the week-end was continued to the editor of the *Reporter-Enterprise*, Oconto, Wis.

In accordance with instructions from the Central Office, special forecasts were made as follows on May 30 and 31 for the National Balloon Race at Milwaukee, Wis., on the 31st:

May 30, 9:44 a. m.

Indications now point to rather unfavorable conditions for start on Wednesday, as showers are probable. However, as the area of high pressure over the northern Rockies this morning moves slowly eastward and southward fair weather is likely after Wednesday. Winds aloft will probably be moderate to fresh westerly Wednesday and Thursday.

May 30, 9:00 p. m.

No change indicated in morning forecast. Western high-pressure area has spread southeastward slowly, but center remains over eastern Montana with diminished pressure.

May 31, 10:00 a. m.

Shallow low-pressure area centered over southern Lower Michigan this morning will move northeastward to-night and Thursday. High-pressure area over Plains States will move slowly southeastward in rear. Showers and possibly thundersqualls indicated next 36 hours, Lower Michigan, Lake Huron, Lower Lake Region, and Ontario, but gradually clearing as far east as Lake Huron by Thursday morning. Rain at Milwaukee will end this afternoon, but clouds will probably not break away until later. Surface winds at start will be moderate northerly, but winds will be westerly aloft, especially above 500 meters, force will probably be from 6 to 10 meters per second, continuing about the same Thursday. No strong winds likely.

May 31, 1:10 p. m.

Shallow trough of low pressure now reaching from southern Lake Huron southwestward and high-pressure area over South Dakota will continue generally eastward movement next 36 hours. Moderate northerly winds will prevail at start at surface with low clouds and probably up to 500 to 1,000 meters. Higher up wind will be more westerly and at about 2,000 meters possibly west-southwest with force from 10 to 15 meters per second. Advise reaching high elevations immediately in order to encounter favorable wind direction and velocity. Clouds will probably continue along entire course.

As advised in the last message telegraphed to Milwaukee on the afternoon of May 31, several of the contestants endeavored immediately to reach a high elevation in order to encounter the westerly movement, but Maj. Oscar Westover, of Washington, the winner of the race, piloting an Army balloon, was the only one who was able to maintain his balloon at a high altitude. He was carried rapidly eastward and landed near Lake St. John, about 100 miles north of Quebec, covering a distance of approximately 900 miles from Milwaukee. Some of the balloonists were able to drift at a high elevation until after crossing the State of Michigan, when, for one